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Sheridan

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(54) **MACROCELLULAR CUSHION AND FOLDING ELASTOMER TRUSS**

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(58) **Field of Search** 428/178, 188, 428/314.2, 314.4, 131, 136, 137, 155, 167, 172, 174, 182, 156

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(57) **ABSTRACT**

An improved closed-cell foam sheet stock and method for producing constant force characteristics in elastomer cushions. A closed cell foam is formed as a corrugated cardboard with regular cavities and support elements between two surface sheets. The resulting stock material possesses similar flexibility to foam stock but with an elongated force curve. A method for modifying this or other corrugated elastomers for efficient constant force curves is further provided where alternating support members are conjoined or buttressed to fold in controlled sigmoid shape under load. The resulting collapsible truss or space frame structure produces a cushion with improved cushioning, load distribution, shock absorption and resistance from lateral collapse while folding uniformly and efficiently to a smooth, compact and comfortable support under full compression. The orthopedic constant force profile allows uses in shoes, furniture, mattresses, sports padding, aircraft seats or packaging applications and extends the dynamic range of more resilient elastic, plastic or foam materials including very lightweight closed cell foam. For packaging applications both the collapsing truss or the less sophisticated corrugated profiles provide lighter weight and improved impact absorption over solid closed-cell foams.

5 Claims, 1 Drawing Sheet